

VIRGINIA WILDLIFE

MARCH 1989

ONE DOLLAR



When I was in college, I can remember sitting around reading a *Sierra* magazine detailing the latest environmental issue and the work EPA was doing to tackle it. I felt secure in the belief that our environment was safeguarded by these champions, these federal and state regulatory agencies designed to serve as protectors of our environment. I can remember thinking how wonderful it would be to work for such an agency, to be a doer of good deeds, a righter of wrongs, a saviour of the environment.

I can also recall my bitter disappointment after landing a job with an environmental agency some 10 years ago. It was then that I learned how big the job was and how small we were. Like the great and terrible Oz, we put on a grand front for the audience, but we were not grand. Like the wizard, our greatness lay not in ourselves, but in how well we inspired *others* to take action.

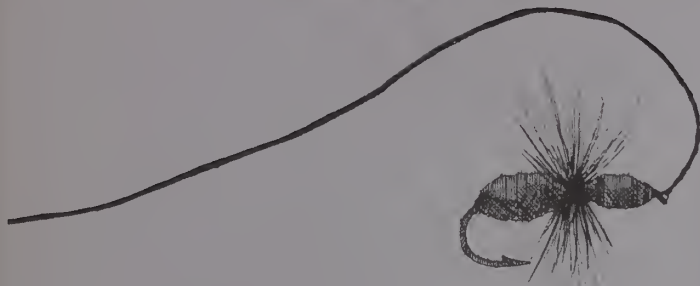
I was not nearly so naive when the Game Department hired me four years ago. Oh, it would have been much nicer to believe that the Game Department was going to wave a wand and take care of the wildlife resources of this state, but it's not the truth. I'm realizing now that we're only as good as the people we teach. Ultimately, those who own the land and the rest of us who influence their actions on it will decide whether or not we lose our wildlife. All we can ever hope to do as a wildlife agency is to show people the right way to proceed, and then cross our fingers.

Accepting that truth can be hard for an idealist to swallow. But, the funny thing is that while I've been contemplating the idea of personal responsibility and wondering if anyone really *will* wake up to the necessity of acknowledging it, some men at the General Assembly already have responded.

It happened last year. It's no big secret that the bobwhite in Virginia is in serious trouble. The loss of habitat, farming practices, and pesticides all have played a role in the decline of this species in the state. The Game Department has studied the factors troubling the species, and attempted to get the information out to landowners to remedy the situation. The problem is, it's been too big of a job for us to take care of ourselves. Enter Delegate William Wilson. In 1988, he sponsored H. J. R. 114 to establish a joint subcommittee of himself, Delegates R. Beasley Jones, Watkins Abbitt, Jr., and Senators Robert Russell, and Kevin Miller to study the decline of the bobwhite. The purpose of this subcommittee was to help *us* get our job done—not by regulation or money or empty talk, but by *cooperation*. Now, some less confident agency might have been threatened by the support of a legislative committee ("what are they doing mucking with us, anyway?"), but we knew better. We knew about Oz.

Plus, this was new stuff. This was no longer reminiscent of the old 70s mentality that the best way to solve a sticky problem is to establish a new agency. No, this seems to mark a new way of thinking—one that says, "Hey, you can't do it all yourselves. Let us help." And, all that has so far come out of that subcommittee's findings indicates that this kind of thinking *works*. They've got state agencies, corporate businesses, Quail Unlimited, private groups and landowners all putting their heads together for something really big and wonderful. Call it strength in numbers, cooperative action, or a new age. I dare to call it *progress*.





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Wild Turkey; photo by Lloyd B. Hill.

Back cover: Great horned owl; photo by Kevin D. Shank.

JAWS IV (Just when you thought it was safe to go back fishing)

by Bill Cochran

The continuing saga of the muskie in Virginia.

"Hey, lemme ask you something about this fish . . ."

by Larry Hart

Curious anglers keep Department fisheries biologists and game wardens busy with questions about their favorite fishing holes this time of year. To save your quarter on a phone call, here are the answers to some of the more common ones.

Gobblers Gone Mad

by C. H. "Kit" Shaffer

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What is a two-weight trout fly rod? What would you do with one if you had it? Could it possibly help you to catch more trout than the tackle you are presently using?

If these questions have crossed your mind, I just might mention that for the past three years I have been using two-weight outfits for the majority of my trout fishing in Virginia. And, I quit playing with toys 20 years ago.

The fly fisherman's lingo of expressing weights, diameters and sizes has always been extremely confusing, so let's cut through that quickly by explaining that a two-weight fly rod is one that handles a very lightweight fly line (80 grains, if you must know). Thus, a fly rod which will cast a very lightweight fly line efficiently must be delicate enough to flex easily.

This easy flexing action is exactly what makes these rods so valuable to Virginia anglers. Since many of our best trout streams are fairly small, permitting few casts beyond 20 feet, our fly rods must respond properly to give us the accuracy we need at this range.

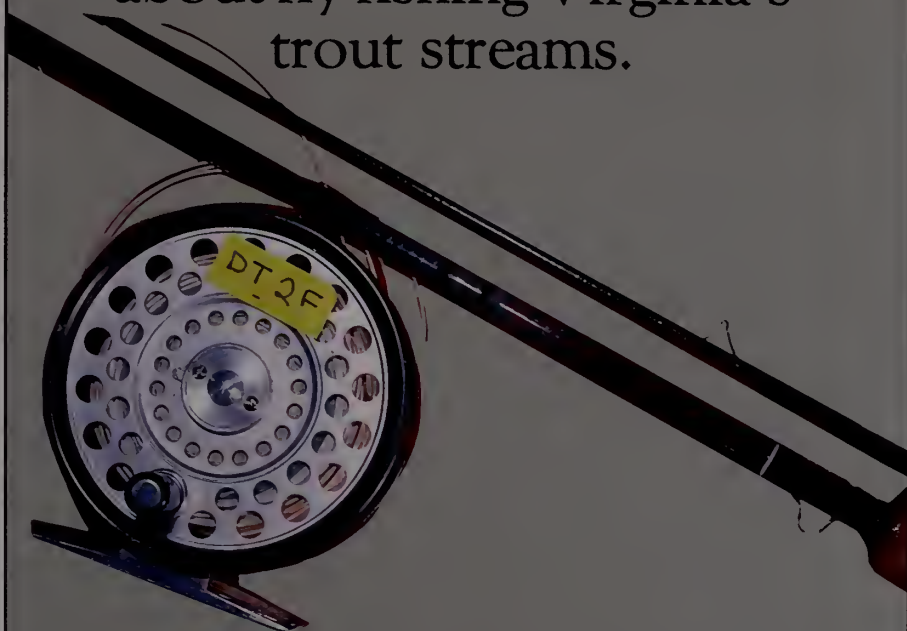
The second feature which makes these outfits so valuable is the delicacy we can achieve with them. This is an extremely important asset, not only to the small stream angler in low water conditions, but also to the tail-water and spring creek fishermen at many times of the year.

For example, last fall I fished one of our trout streams that had both fast and slow water stretches with good trout populations on both areas. Over the years I had come to devote more time to the higher gradient area simply because the trout were easier to catch there. They were not as wary in the fast water, nor were they as demanding of a precisely natural drift of my flies as their cousins in the flatter, slower sections of the stream.

On this particular day, several fellows were in the fast sections of the stream, so I reluctantly headed to the flat water and its tough fish. I was using my favorite two-weight rod that day, which is eight feet long, and although it presents the fly very delicately, it possesses enough backbone to shove out a

ULTRALIFES

The two-weight fly rod that will change your life—and your thinking about fly fishing Virginia's trout streams.



story & photos by Harry Murray

The two-weight fly rod is made to order for Virginia's small trout streams.

long cast when needed. (This latter attribute is where some of the earlier two-weight rods let us down.)

As usual, some small trout were feeding on chironomid midges in midstream. These fish are always very tempting, but by carefully studying the situation, one can locate the largest fish along the banks. The grass hanging

small mountain streams, and my stream notes show that over the past several years while using the two-weight rods, I have almost doubled my catch over previous years. The accuracy these delicate rods afford at these close distances is phenomenal. We should be very grateful for this feature, because it is a side benefit of the two-weight rods and had little to do with their initial development.

As a matter of fact, many manufacturers are extremely interested in producing fly rods which will easily cast

condition of spring could be well handled with this rod, I carefully waded into the tail of the first pool. Much to my surprise, I saw a nice brookie on a feeding station 15 feet away. He answered my doubts as to whether I had spooked him by rising to suck in a natural fly. His confidence to feed bolstered my confidence to take him, but that feeling quickly evaporated.

I carefully measured my cast in order to determine the proper length of line I needed to reach him. I was okay on this, but my presentation cast was so far off the target that he didn't even see my fly as it drifted by. My second cast was closer, but I still did not hit the line of drift I was aiming for,

from the banks, and the drooping limbs from the shrubs provide perfect overhead cover for these wise, old trout.

These bank-huggers feed on the same midges as the smaller trout in midstream, but they are constantly on the lookout for land-born insects which fall into the stream. Their willingness to feed, however, does not make them a pushover for our flies. On the contrary, they are some of the toughest trout I fish for—that's how they get so big.

Thinking this would be a good test for my eight-foot, two-weight rod, I tapered my leader down to 8X and attached a size 24 dry Black Ant with a Spence Turle knot.

The first trout I located along the grass sweepers came confidently to my little Ant and took it without a break in his rise rate. He, apparently, was not the only fish in that flat water that felt comfortable about the little Ants on a fine tippet; I landed more big fish in the next two hours than I had on the previous eight trips combined when I had been using a four-weight rod.

But, don't assume from this that a good two-weight graphite fly rod is capable of fishing only small flies. I'll switch from fishing a size 24 mayfly on an 8X tippet to fishing a size 12 Shenk's Cricket on a 4X tippet without hesitation—and the rod performs beautifully in each situation.

I spend right much time fishing our

long distances. Some diligently test and alter various models to provide teacup accuracy at 30 to 40 feet. However, few are interested in producing rods which provide the delicacy and accuracy Virginia's anglers need in our small mountain streams. Several have made strides in this direction, but most nod and go on producing rods to cast into the next county.

Not to worry; the two-weights have solved this problem for us. Not since the days of the delicate premium glass rods—which for economic reasons, no one makes anymore—have we had rods which give us the delicacy and accuracy we need at these honest 15-25 foot fishing distances. Since a good graphite two-weight rod is perfectly capable of smooth presentations with flies ranging from size 12 down to size 28, we also can use them over the majority of our fishing season.

Last spring I took a little five-weight fly rod to one of these small mountain streams to try it out. I had used it the previous fall on larger streams and felt it did a good job in that type water. On the assumption that the high stream

and by the time my fly came within his view, drag had set in and although he had started to inspect it, he now raced quickly back to his feeding station. Finally, on the third cast I got my fly where I wanted it (luck I think) and it drifted naturally over him. Unfortunately, all my thrashing around had let him know something was not proper, and he did not even rise to inspect my fly. I finally gave up and went up to the next pool, mumbling to myself about my stupidity in tackle selection, and probably having a few negative thoughts about the specific rod manufacturer.

Why couldn't I accurately cast my fly to the desired target 15 feet away? Let's look at what I was actually doing. I was using a leader which was eight feet long, and since I was within 15 feet of my target, this meant I was throwing only seven feet of fly line, not the 30 feet for which the rod was designed. This required that I snap the rod forward with extra force in order to deliver the fly. Graphite, being a very stiff material, with little mass in the fly rod tip, does not respond well to this

overpowering type delivery. Basically, these rods do not respond to it the way bamboo and glass rods of yesteryear did. Accuracy becomes a hoped for, rather than an anticipated goal.

How would a two-weight fly rod have solved my problem requiring an accurate presentation to a fish 15 feet away? The fact that they are made to respond to a much lighter line mass enables them to bend more easily under the greatly reduced actual fishing load. The rod tip flexes with just a minimal amount of line extended, and if the butt is properly designed, it enables us to cast the fly with amazing accuracy.

This accuracy rewards us with more

I was very much aware of the larger numbers of trout I took on these two-weight rods the first full summer I used them three years ago. Wondering if the credit lay with the new rods or if I had subconsciously solved some of my previous problems, I switched back to my stronger rods. There was no question in my mind, the delicate rods deserved the credit.

This point was driven home to me one fall day on a small mountain brook. Knowing the stream quite well, I was very familiar with the tough trout which lived in one specific large, flat

of small insects, the Jassid is the best fly to use.

I had played this game often before, but that flat spooky pool and my larger line sizes had afforded only limited success. Maybe my two-weight rod would improve my results.

Spotting the closest trout feeding across the lowest part of the pool, I delicately cast my Jassid two feet out in front of his last rise form. The small two-weight fly line dropped on the water like a feather and the trout sucked in my fly without any hesitation. No, this was not a particularly gullible brookie; four of his roommates fell for the same tactics.

There are a number of two-weight graphite fly rods presently on the market. I have several shorter two-weight rods that do a fine job in close, but my favorite two-weight rod for all situations is eight feet long.

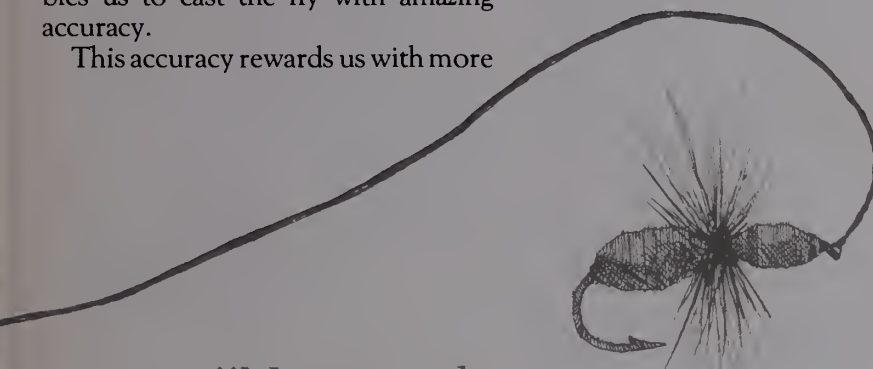
There are several excellent two-weight fly lines on the market, so the selection task is simplified here. However, it is imperative that special attention is given to the leader selection.

The butt of the leader must match the flexibility of the tip of the fly line if we expect these delicate outfits to perform at their best. With the best leader materials on the market, this means using a butt section of .017 inch diameter. After a compound tapered butt section about six feet long, the leader should taper down quickly to about a 30-inch long fine tippet.

There are a number of excellent lightweight fly reels which work well on these rods. The main feature I look for is an extremely light adjustable drag. Unfortunately, several English companies, who make otherwise fine reels, have chosen not to put adjustable drags on their lightest reels. After losing several large fish for this reason, I resolved the problem by filing down the drag mechanism.

No, two-weight fly rods are not toys. If anything, they are the rods which will retire many other outfits for serious Virginia anglers—as they did for me. □

Harry Murray is a frequent contributor and among other pursuits, he teaches fishing and fly tying in Edinburg, Virginia.



"Not since the days of the delicate premium glass rods—which for economic reasons, no one makes anymore—have we had rods which give us the delicacy and accuracy we need at these honest 15-25 foot fishing distances."

trout throughout the entire season in the mountain streams, and, the delicacy of these two-weight rods is invaluable from mid-summer through fall.

During this period, these small streams get very low and the trout become quite wary. Dealing with this problem each year for many seasons, I had come to accept the limited measure of success these little streams afforded. I adjusted as best I could by using longer casts and finer leaders with smaller flies. And I kept fishing them because the mountain brookies are very special to me—even if they were tougher to take under these circumstances.

pool. Although these fish often cruised just under the surface, taking a variety of tiny insects, I was seldom able to catch them, getting skunked at an embarrassing rate.

Debie Waterman is the finest angler I know in these situations. I have seen her consistently take trout under these conditions when others were just getting casting practice.

On this specific day, I decided to borrow Debie's tactics; that is, going to very small Jassid dry flies on the lightest leaders and casting only to the fish that I could see feeding. Debie feels, and many fine anglers agree, that when trout are cruising about taking a var-

When I was growing up in the foothills of the Blue Ridge, anyone who wanted to catch a muskie had to travel northward, preferably to Wisconsin or Canada, or some remote place better than a two-day's drive, where they'd spend a week or more of 12-hour days attempting to make that magical 10,000th cast. That's how many, according to angling lore, were required before some long-jawed monster just might wrap its snoutful of teeth around your lure. That and a generous amount of luck. When it happened, you'd never be the same again, regardless of whether or not your line held. You'd be a muskie fisherman. You'd be set apart.

Such fastidious requirements meant few Virginians were muskie fishermen, especially successful muskie fishermen. So I can recall with delightful vividness the night Robert G. Martin stood on a Roanoke stage and told the local rod and gun club that muskie would be stocked in budding Smith Mountain Lake. That was about 20 years ago.

Twenty-thousand-acre Smith Mountain was just beginning to swell across the farm fields and pine patches, fingering its way into countless remote coves, like a giant ink blot gone wild. Martin was chief of the Fish Division of the Department of Game and Inland Fisheries at the time. He was a biologist with a bit of showmanship in his blood, although dramatics weren't necessary to fire our spirits the night he warned us that the muskie were coming. I am quoting from memory now, but I recall Martin saying something to the effect that muskie grow to be as long as a pickup truck bumper; that they dominate their part of the watery world like sinister submarines; and that they can break your fishing rod and your heart with a single sweep of their muscular, V-shaped tail.

While no muskies were hooked that night, or anytime soon, a lot of fishermen were, even though most of them never had seen a muskie before. After the program, some people in the audience stood around awestruck, but as a young reporter I ran to the newsroom to file what would be the first of

JAWS IV

(Just when
you thought
it was safe
to go back
fishing)

The continuing
saga of the
muskie in
Virginia

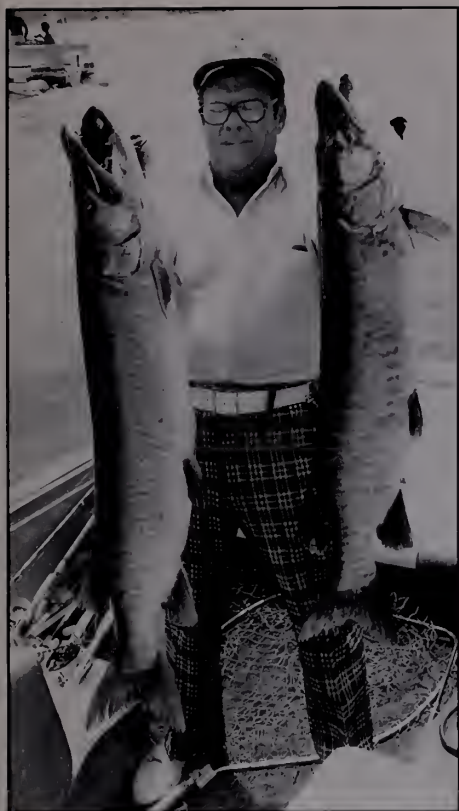
story & photos
by Bill Cochran

many stories on muskie. I quickly developed a special fondness for muskie, one that has not waned with the years. What writer doesn't enjoy putting punch to his prose, and with muskie you are free to cut loose with lurid and highly colorful yarns. Seldom will you overplay or outdo the reality of your subject.

Although muskie, by nature, never become abundant, Virginia's stocking program enjoyed swift success in establishing populations in Smith Mountain Lake, the James River, the New River and other waters. A stocked fingerling the size of a ball-point pen would be 35 inches long in five years. That's a big fish, especially to anglers accustomed to foot-long trout and 15-inch bass. That's not a big muskie, though. The big ones were still to come—later.

In the February, 1973 issue of *Virginia Wildlife*, I reported that most muskie catches were incidental. During the first decade of muskie introductions, as Outdoor Editor of the *Roanoke Times*, I dutifully recorded the tales of wide-eyed fishermen who unexpectedly had tangled with a muskie. Most likely, old *Esox masquinongy* was caught by chance. An unsuspecting bass or crappie or catfish angler suddenly had the water explode around his lure or bait, as if someone had split the tranquility with a stick of dynamite. Then a great fish would arrow skyward, like an airborne crocodile, mouth agape, teeth showing, eyes seething. It was a muskie. What else?

Catches still are made incidentally; however, now there is a small, but vibrant core of dedicated muskie fishermen in Virginia, a brotherhood of anglers who choose to call themselves muskie hunters rather than muskie fishermen, a reflection of the species' big game features. They have been extremely successful, though not to the point of growing complacent. Burning within their veins is an incurable desire to hunt down and catch muskies—even with the intent of releasing them. These anglers, male and female, frequently reflect some of the same mysterious traits as the fish of their affection. So this is a muskie update, a fresh look at the fish and the



Carl Franklin of Salem founded the Old Dominion Muskies Hunters Club in 1975 and has himself landed more than 20 muskies, including one above 30 pounds. Many look on him as the father of muskie fishing in Virginia.

fishermen who share a cunning, dogged determination and unpredictability that can make other creatures appear anemic in comparison.

If you were to select the father of muskie fishing in Virginia, few anglers would have more impressive credentials than Carl Franklin of Salem. One day in 1971, Franklin was minding his own business on Smith Mountain Lake when his fishing rod nearly was ripped from his hands by a menacing-looking creature with bulging eyes, needle-sharp teeth and a body like a chunk of two-by-eight hickory stud-ding.

It was a muskie, and as Franklin examined its long-jawed, cavernous characteristics, from the deep green of its back to the new moon color of its belly, from the tip of its long, sloping snout to the extremity of its broad tail, he was intrigued. A bonfire of enthusiasm for muskie and muskie fishing suddenly blazed within him, and it has shown no indications of cooling, des-

pite whole seasons without a catch; despite heart problems that have kept him off the water for extended periods.

Since that first fish, Franklin has landed more than 20 muskies, including one above 30 pounds. Two of them came back to back, an 18-pounder one evening, a 30-pounder that next morning.

Even so, he is swift to tell you that the odds are stacked so lopsidedly in favor of the fish that one must occasionally pause to ponder the sense of even showing up on the playing field.

"To consistently catch them takes an awful lot of persistence—or maybe it takes a nut!" he said.

Franklin is an astute student of the fish. Long hours are spent trolling on Smith Mountain, a lake that guards its grand prizes in deep vaults of mysterious water. Off the lake, he pores over charts, technical papers, personal notes and data gathered from other muskie fishermen, all in an effort to glean a much needed advantage over a fish that appears to be well garnished with advantages. The muskie is an obsession that demands much time, on the water and in your dreams, yet Franklin will tell you that one really never gets to know this disconcerting finny fellow.

In 1975, Franklin founded the Old Dominion Muskies Hunters Club, an association that has disciplined a number of hard-nosed purists. Unlike similar clubs in several states, you don't have to catch a muskie to qualify for membership. You simply have to try. Even that can be so encompassing that casual members soon purge themselves from the rolls, and the roster seldom numbers more than 20 names.

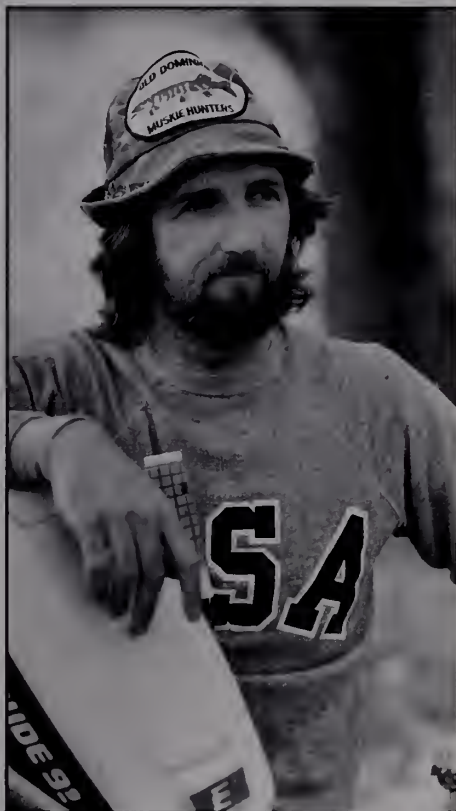
Those names, with a few exceptions, read like a who's who of muskie fishing in Virginia. There is:

Glenn Linkenhoker of Salem, who discovered muskie in the James River in 1968 while stalking the stream's famed citation-size smallmouth bass. Linkenhoker pursued them for two years before savoring this first catch. Since then, while fishing from Eagle Rock to Arcadia, he estimated he has landed approximately 150, the biggest a 28-pounder. In 1984, he registered 15 citations.

Alex Scott of McCoy, who recalls landing his first muskie from the New River the last Saturday of October, 1979, and who has reeled in over 70 citations since, with the largest weighing 35 pounds, 8 ounces.

Bill Russell of Roanoke County, who was the undisputed champion of the James in 1983 when he wrestled to his boat 24 citation muskies, including a 32-pound, 2-ounce giant believed to be the largest ever reported from the historic stream. A portion of his diary reads this way:

Jan. 28, a 24-pound, 2-ounce catch.



Glenn Linkenhoker of Salem "discovered" muskies in 1968, and fished for them for two years before catching his first one. He has landed 150 muskies since.

Jan. 30, 20 pounds, 14 ounces
Jan. 31, 23 pounds, 7 ounces
Feb. 1, 18 pounds, 14 ounces
Feb. 9, 29 pounds, 12 ounces
Feb. 10, 17 pounds, 1 ounce
Feb. 13, 32 pounds, 2 ounces.

Richard Boone, who retains a bubbling enthusiasm for muskie fishing, even after being hit by a train and hospitalized for 13 days while attempting

to cross unguarded tracks to reach a favorite fishing hole on the James. A charter member of the muskie hunters club and a former state-record holder, Boone has 45 citation plaques in his Roanoke home.

In the early years of Virginia's muskie development, Smith Mountain Lake dominated the trophy catches,

of Bull Run, a popular muskie lair on the Blackwater River side of the sprawling impoundment.

It had been one of those fruitless occasions, where Meeks had cast three to four hours without success, the kind of day you take special notice when a fish suddenly rolls on the surface.

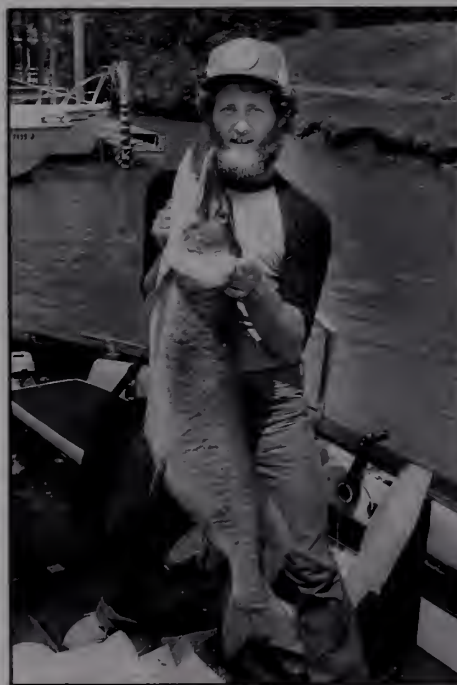


Bill Russell of Roanoke County brought in 24 citation muskies from the James River in one year.

and whenever the record was broken—which was often—most likely it was done by some angler who came back grinning and bearing an eye-popping fish from the big lake. During more recent seasons, the James and New Rivers have been firmly entrenched as the state's muskie hot spots. The two streams have been accounting for approximately 75 percent of the citations. In 1984, the James hit its all-time high of 68 citations. In 1987, the New gave up 90 citations. However, the current state record holder under the new guidelines set in 1986 is Claude Karns, who caught a 36-pound muskie from South Fork Holston River on six-pound test line on March 8, 1987.

Smith Mountain still claims the historical record, a 41-pound, 3-ounce fish landed on May, 1983 early one mid-week evening by Eddie Meeks, a Franklin County tobacco farmer. Although not specifically muskie fishing, Meeks was plug casting the mouth

Eddie Meeks, a Franklin County tobacco farmer, holds the state's historical record for muskie with this 41-pound, 3-ounce monster he took from Smith Mountain Lake.



"I didn't know exactly what it was, but I made several casts to it, and he hit," said Meeks.

Actually, "he" was a she, a female in pre-spawning condition, with eggs freely flowing from her body cavity. She measured 48 $\frac{3}{4}$ inches, which is approaching truck bumper status. David Whitehurst, now the assistant chief of the Fish Division, estimated she came from a stocking of 1,000 fingerlings in 1971, which made her approximately 12 years old.

The previous historical record was a 39-pound, 12-ounce New River catch, taken just downstream from White-thorn by Tim McCoy of McCoy. A loner who spends long hours on the river, McCoy claims numerous catches, many of them taken during the agony of slow trolling when temperatures take a plunge November through January.

McCoy successfully has operated under the theory that if you plow the water long enough a muskie eventually will hit, out of hunger, out of meanness, out of boredom, out of something. Even so, more often than not—much more often—you are destined to dock empty-handed.

"If a man caught a muskie every time he went out, it would be just like any other fishing," said McCoy.

There are times, rare occasions, to be certain, when the big fish appear to go on a reckless feeding rampage. During one unforgettable two-week period in late June and early July, New River angler Alex Scott and three companions landed 22 muskie. Bill Russell and three companions caught eight in a single day during one preposterous winter outing on the James. When anyone is awed by the report, as well they might be, Russell is quick to temper it by adding that the blitz had occurred after 19 days of fishing when he "didn't even see one." Those 19 days of famine speak more elegantly of muskie angling than do a fanciful feast of eight catches. Meat fishermen are certain to feel the pangs of hunger while muskie fishing.

"There is no big secret to muskie fishing," Russell will tell you. "It is just being persistent, staying with it."

Buford Davis, whose hillside home

is perched above his beloved New River in Fries, is a man who has paid his dues with steadfastness since discovering muskie while bass fishing a decade ago. He has landed as many as eight in a single day from the New. Some years he will wear out as many as three reels while muskie fishing.

His first catch was a modest 30-inch

every foot of it. I've been on it 40 years. It is an obsession with me."

While muskie are relatively newcomers to Virginia rivers, as far as modern age anglers are concerned, it is fitting that they have done well, particularly in the New. Historically, they are a fish of the rivers. It is generally agreed that they entered the Missis-

It is an admirable act of unselfishness.

"When I caught the first one, my knees were shaking when I got it in," said Linda Craft, a James River angler from Covington, who is a member of the Old Dominion Muskie Hunters. Hers was a modest, 10-pound, 2-ounce catch, but it looked huge. The next day a wild rush and crunch of



Tim McCoy spends long hours on the New River. The time paid off with a 39-pound, 12-ounce muskie he took just downstream from Whitehorn.



Linda Craft, a James River angler from Covington, caught her first muskie, a 10-pound, 2-ounce fish, and she was hooked. The very next day, she hooked a 17-pound, 12-ounce muskie.

fish. "I strung him with a good string of bass." Later the same week he got another that appeared to be from the same mold. "I turned him back. I went on downstream and I got one about 14 pounds. That got me started."

There has been no stopping him. By the early 80s, he had tallied 400 catches. If anyone in the state has done better, I am yet to meet him. Davis finally gave up counting, but the catches have continued, including 23 during the spring of 1985, among them a 36-pounder. Most nowadays are uncereemonially released into the river to fight another round.

"As for catching that many muskie, it's not that I am lucky or any better than anyone else, it is just that I fish more," Davis said with modesty. "I am on the river all the time. I know

Mississippi drainage from the sea, and they were isolated in the upper Mississippi region during the retreat of the glaciers. Since the New is an ancient, north-flowing tributary of the Mississippi, it is as if these grand prizes of nature have been reinstated to the roots of their existence.

An update would be incomplete without noting the noble trend among maturing muskie anglers of releasing their catches, except those that are record candidates or merit the attention of a taxidermist. A part of the mystique of the species is the joy of battling a fiery-eyed trophy, and then releasing it, giving it a second chance to survive, to grow, to maybe even multiply, to come back to you twice as big and exciting, or to thrill some newcomer who'll never forget the experience.

powerful jaws occurred a second time, and she landed a 17-pound, 12-ounce fish. Within a year, she had landed two more.

"You've got to keep going. You can't give up. I know what's out there now," said Craft, who has learned that while muskie aren't easy, they aren't impossible, either.

What is out there is the heavyweight champ of freshwater angling. The champ does not come to town often, but when he does it is such a momentous occasion that it can blind you to the adversity that occurs between visits. □

Bill Cochran is the Outdoor Editor of the Roanoke Times & World News.

“Hey,
lemme ask you something
about this fish . . .”



Curious anglers keep Department fisheries biologists and game wardens busy with questions about their favorite fishing holes this time of year. To save your quarter on a phone call, here are the answers to some of the more common ones.

by Larry Hart

Game wardens and fisheries biologists field lots of questions from fishermen this time of year. Many are the same questions, coming from curious minds wanting to know more about their sport. We've compiled a list of the questions most frequently received over the years, and tried to answer them. We hope this information will not only increase your knowledge, but stimulate your curiosity to learn more about the complex nature of life underwater.

Doesn't it hurt a fish when it is hooked?

In general, fish do not have the proper type of receptors (nerves) in their mouth cavities to feel pain. Pain receptors are present on other parts of their bodies. Pain receptors in the mouth would be a disadvantage for fish. Can you imagine swallowing a live bluegill, spines and all, or a crayfish? The fish knows something is wrong when hooked, enough to be distressed, but as far as hurting from the hook, usually they aren't.

What should I do if a fish swallows a hook?

This question is usually asked in relation to fish that the fisherman wants to release. The best thing to do is to cut the line inside the mouth. The fish's own stomach acids and defensive mechanisms will usually dissolve the hook and the fish will survive.

How fast does a fish grow?

Growth rate depends on the species and conditions in which the fish lives. Few fish grow at maximum rates in natural waters. A typical striped bass in freshwater will grow to 6-9 inches the first year, 12-16 inches the second, 17-21 inches the third, etc. A typical largemouth bass will grow to 2-5 inches the first year, 5-8 inches the second year, 8-13 inches the third year, etc. Trout growth rates are quite variable, especially when comparing naturally-produced trout to hatchery-reared trout. Hatchery-reared trout grow much faster than naturally spawned trout. A 10-inch trout could be anywhere from 1 to 4 years old. A tiger muskie can grow over 20 inches his first year while a 4-inch bluegill may be 5 years old. Growth rates vary, but generally, a fish grows fastest the first few years of its life.

How long can a fish live?

Like growth rate, longevity depends on the species and conditions. Slower growing fish tend to live longer. Striped bass can live 10 or 11 years in freshwater, but they live much longer in the ocean where they grow slower. Largemouth bass can live to 14 or 15 years old while a bluegill rarely lives to be 10. A 10-year-old trout is very old, while a 10-year-old channel catfish is not that uncommon. Different species have different life spans under different conditions, but few fish in Virginia live to be older than 10-15 years. (Note: Those big bass they put in there 10 to 15 years ago probably don't weigh 15 pounds, they're probably dead!)

How can you tell how old a fish is?

The most usual way is to look at a scale and count special marks on the scale called annuli. Rings grow on fish scales much like the rings on a tree stump, but several rings grow on a fish scale each year, so the trained eye looks for annuli. The number of annuli and the spacing between them tells how old the fish is and the growth each year of life. For fish without scales, a thin slice is sawed from a hard bony part of the fish, such as a catfish spine, and growth rings are counted.

What fish grows the largest in Virginia?

Since the flathead catfish has a greater potential for attaining a larger size, the flathead probably grows larger than any other freshwater fish in Virginia. Flathead catfish over 100 pounds have been caught in other states. But, with the recent introductions of blue catfish into eastern tidal rivers, this could change, since blue catfish can also reach 100 pounds.

What is the largest fish in a body of water?

The largest fish depends on the body of water in question, but Virginia's larger freshwater fish are the flathead catfish, carp, striped bass, and muskellunge. Knowing this and the species present in the water, one can usually guess what the largest fish will be. In ponds without carp, a largemouth bass or channel catfish will usually be the largest fish.

How can you tell a spotted bass from a largemouth?

The easiest way of telling a spotted bass is to look for rows of faint spots on the lower sides of a fresh fish. Also, spotted bass usually have reddish eyes and tooth patches on the tongue. Just rub your finger across the tongue. If you feel rough tooth patches, you have a spotted bass. Also, geographical location answers the question most of the time. Spotted bass are native to the Mississippi drainage, so they may be found in the mountains of western Virginia. But they have been stocked recently in the Appomattox, James, and Staunton River drainages.

How can you tell a white crappie from a black crappie?

Count the number of spines in the dorsal fin. White crappie have 5 or 6 spines and black crappie have 7 or 8 spines. This is easy to recall if you remember both white and six have an "i" in them.

How can you tell a channel catfish from a blue catfish from a white catfish?

What is frequently mistaken for a blue catfish is a male channel catfish in spawning color. Males often lose their spots during spawning season, get dark blue in color, and their head gets larger. These male channel catfish are commonly called blue catfish by Virginia fishermen. Blue catfish are distinguished from channel catfish by having a straight lower margin in the anal fin. Distinguishing channel from white catfish is a bit harder. Channel catfish usually have spots, but not always. The white catfish has a very white belly and a more blunt head, that's similar to a bullhead. Anal fin ray counts accurately separate the two species, with channel catfish having 25 to 30 rays and white catfish having 19 to 22 rays.

How many eggs does a fish spawn?

The number of eggs spawned depends on the species and the size of the fish. Trout may spawn 500 to 1,500 eggs per pound while striped bass may spawn 100,000 eggs per pound. Bluegill may spawn 25,000 to 85,000 eggs per pound; largemouth bass may spawn from 7,000 to 40,000 eggs per pound, crappie 75,000 to 100,000 eggs per pound, and channel catfish 7,000 to 10,000 eggs per pound.

How many of those offspring will live (stocked or natural)?

Most warmwater fishes suffer a 50% mortality per year after the fish reach fingerling size. Mortality before the fingerling size can be much higher, with 75 to 90 percent mortality not uncommon. For example, if 100 fingerlings were present, about 50 could be expected to be alive the following year, 25 the second year, etc. In seven years, usually less than one percent of a year class are still alive.

Do these fish have pollution in them?

Pollution is a vague term, but most fish have at least small amounts of some type of pollutant, as do beef, pork, poultry, and wild game. Unless posted otherwise, most freshwater fish in Virginia are suitable for human consumption.

What are those worms I see in fish?

Two types of worms may be noticed in fish and neither are harmful to humans. The small curled worms found around the intestines are usually nematodes. They are not harmful to the fish, and are usually removed when the fish is cleaned. Sometimes, a small yellowish worm may be found in the tissue of fish (usually largemouth bass) and is a life stage of a tapeworm, but again, it is not harmful to humans.

What are the black spots I see on fish?

Again, the black spot is a small encisted worm that is not harmful to humans.

What can I do about worms or blackspot on my pond fish?

There is no easy treatment for the problem of worms or blackspot on pond fish. Since snails are involved in the life cycles of most worm problems in fish, reduction of the snails can improve the problem over time. One of the best ways to improve the situation is to keep pond weeds under control, since snails use the weeds as a feeding surface.

Can fish see you or hear you?

The answer to both questions is yes. In clear water, a low profile may help you catch fish. Fish in waters that are fished infrequently may be more easily spooked than fish in heavily fished waters that are somewhat more accustomed to seeing people. For instance, a remote farm pond may require more care to avoid visual contact with the fish than in a heavily fished reservoir. As for hearing, normal voice conversation travels poorly from air to water. What

fish are likely to hear are heavy footsteps on a boat bottom, the rattling of a stringer over the side, or heavy footsteps approaching the stream or pond.

Where have all the crappie, or largemouth bass, or white bass gone?

All warmwater fish species have natural cycles. Some years they are more abundant than in other years. Most fishermen like to remember the peak years. Peak years usually occur three to four years after an impoundment is flooded. Good fishing usually results from the increased nutrients and expanded habitat that a new lake offers. Fishing success usually declines in older reservoirs as habitat deteriorates and the nutrients derived from flooded terrestrial vegetation is flushed from the lake. Peak years occur in older lakes for some species when a number of natural variables are right for the species. The required variables are seldom there year after year, just as the weather is not constant. Rarely is a species "gone;" they are just less abundant.

How deep in the water will a fish go?

The depth to which a fish will go usually depends on oxygen and temperature. During summer months, many Virginia lakes lose their oxygen in the deeper waters, and this limits the fish movement during the summer to the upper layer of water. In lakes where oxygen is sufficient at great depths, it is not unreasonable to assume fish will go very deep. During winter months, oxygen is usually sufficient to the bottom of most reservoirs and fish may travel freely. Fish have been observed in water over 150 feet deep in some Virginia reservoirs when conditions were correct. The depth to which a fish will go in a particular body of water depends on the time of year, and the characteristics of the water in question.

About how many fish are there in this body of water?

The sheer number of fish in most Virginia waters would astound most fishermen. For example, studies at Claytor Lake indicate approximately 4,500 fish per acre. Many of these fish, however, are small bait fish. Population studies show from 10 to over 250 harvestable size game fish per acre in Virginia waters.

Will trout live in my pond?

Most Virginia ponds will not support trout during summer months. To support trout, a pond must have a sufficient amount of water that has adequate oxygen and food to support trout and that does not get hotter than 70 degrees at any time during the summer. This rules out most ponds in Virginia. However, the higher the elevation, the greater the likelihood the pond will support trout.

What's wrong with my pond? Fishing isn't as good as it was.

Just like the reservoirs discussed earlier, ponds go through an aging process, with good fishing early in the history of the pond and poorer fishing with age. Most farm ponds can be renovated to improve fishing. Local extension offices have pamphlets which will aid in answering a multitude of farm pond questions. Assistance is also available for pond owners from the VPI & SU Extension Service, county extension agents, and the Soil Conservation Service.

How can I get fish for my pond?

Fish are available from commercial hatcheries. A list of commercial hatcheries and the species they sell is available from the Fish Division offices.

Will putting brush in my lake or pond help its productivity?

Each individual lake must be treated on an individual basis, but adding brush is usually beneficial if added in moderate amounts and in deep water. Adding brush to shallow water just enhances any stunted sunfish problem, the plague of farm ponds.

Won't striped bass eat up everything?

Careful food-habit studies have shown the diet of the striped bass is made up of more than 92 percent forage species such as gizzard shad and alewife. Striped bass can consume gizzard shad that are larger than the average native predator can eat. When striped bass crop back the large gizzard shad, more room is created for younger and smaller gizzard shad that can be consumed by other predators. Striped bass are stocked in an effort to help our other predators such as bass and crappie. At the same time, the striped bass themselves add a great deal of angling pleasure.

Why put muskies in here?

Unlike striped bass, muskies are usually stocked as a trophy fish. Their preferred food items are suckers and chubs. Muskies are stocked in low enough numbers so that they will not exhaust the food supply and still provide a thrill to the few anglers who hook one. Muskies are stocked for the angler's enjoyment, but care is taken also to stock them in numbers that will prohibit them from seriously infringing on other sport fish.

Why don't you stock bass?

Bass reproduction is seldom the limiting factor on harvestable bass abundance, thus to stock more fingerling bass would be ineffective in all but new and reclaimed waters. Furthermore, to stock harvestable size bass is too expensive, with a 12-inch bass costing approximately \$1.50.

Why do you have to poison lakes to sample?

One of the best methods to assess the status of fish populations and success of management practices is to sample a smaller portion of the water in question with a fish toxicant. The area sampled in relation to the size of the body of water is usually quite small. Many important management decisions usually hinge on these samples. Information such as spawning success, growth rate, relative abundance and population structure are obtained. Fish toxicants are all-inclusive, in that the sampling technique is equally effective for large and small fish of all species. The toxicant is carefully selected to be safe and effective. Sampled areas are rapidly replenished; in fact, work on Smith Mountain Lake with electrofishing gear indicated an unnoticeable difference between adjoining coves just 7 days after rotenone sampling in one of the coves.

Won't shockers kill fish?

Electrofishing gear used by our staff is carefully selected and adjusted to avoid killing fish. The manner in which the electrical current is applied to the water temporarily stuns the fish without causing lasting effects. Most fish recover in a matter of seconds, depending on the conductivity of the water. Virtually all fish recover within 1 to 2 minutes.

Why don't they fix problems with a fishery?

Most fisheries problems require long term cures. Most fishermen want short term solutions. Quite often a problem in a large reservoir requires a minimum of 3-5 years to correct, if the problem can be corrected at all. Fisheries science is not a simple field. Many of the answers needed to solve fisheries problems have not been answered. The Virginia Department of Game and Inland Fisheries is doing as well as any state in managing its waters, by placing high requirements on its biologists and selecting very good personnel. With most fisheries problems, it is not a simple matter of fixing it. We must study the problem before a solution is attempted. And, as stated before, most solutions are long term affairs.

Larry Hart is the Acting Chief of the Department's Administrative Services Division and formerly worked as a Supervising District Fish Biologist with the agency.

Gobblers Gone Mad

by C. H. "Kit" Shaffer

Gobblers have a frustrating tendency to be unpredictable—crazy, even. Ever heard of a turkey gobbling in a snowstorm?





Ever since we learned about the birds and the bees, we discovered that wild turkey gobblers invariably sound off every springtime to attract hens. It is a ritual that drives turkey hunters out of their minds and out of their beds at unbelievably early morning hours. Sportsmen in pursuit of big tom turkeys, however, soon learn that not every morning afield is necessarily springlike. Through the years we have hunted in rain, sleet, and snow. During any given season the temperatures might fluctuate from the teens to the plus 90 range. While chasing after springtime gobblers, hunters can expect to be frozen, roasted or drenched. We know that both the weather and wild turkey behavior patterns are erratic and unpredictable, but are there any correlations? How do wild turkey toms react to radical climatic changes, or for that matter to normal seasonal weather?

Novice turkey hunters assume and expect trophy toms to gobble every morning during the springtime, but "it ain't necessarily so!" Without a doubt, one of the most perplexing problems is to figure out what effect, if any, weather has on gobbling activities. For many years hunters have attempted to correlate gobbling intensities with springtime temperatures, precipitation, wind velocity, atmospheric pressure and other climatic factors. To date, we are not any closer to solving the riddle than I was 40 years ago. Every spring I religiously follow closely the local, state and national weather forecasts and try to dress and hunt accordingly. However, about 50 percent of the time, those obstinate toms fool me with their unpredictable gobbling.

We turkey hunters always take for granted that a calm, warm, gorgeous springtime morning will surely turn on every gobbler in the country, but the reverse is often true. For instance, take a typical morning in April: you assume from the predawn prospects that conditions are letter perfect for turkey mating activities. You know that there

photo by Vinyard Brothers

will be no rain or snow. At sunrise you wait breathlessly for a woods full of gobbling, but you are greeted instead with an entire morning of maddening silence.

If you didn't know for certain, you would be assured that all of the tom turkeys had been harvested by other hunters, or that there wasn't a solitary gobbler in that neck of the woods. However, the very next morning when you reluctantly enter the same woods, every climatic detail—temperature, wind velocity, and atmospheric pressure are identical to the preceding morning, and suddenly the forest is reverberating with the exciting chorus of spring gobbling! Where the heck were those big birds yesterday? Season after season you probably have the same perplexing experiences. Hunters have frequently asked for my theories on these puzzling situations, but I must honestly admit that I really don't know why toms gobble so unpredictably.

Perhaps the most embarrassing and heartbreaking turkey hunt of my career will illustrate the frustration of unpredictable male turkey behavior. Many years ago I was instructed to take the Governor of Virginia gobbler hunting. Naturally, we were extremely anxious to assist him in collecting a large trophy. We selected Quantico Marine Base as the site for our turkey safari. The game managers on this popular public hunting area annually maintained an accurate record of turkey gobbler observations on the base. That particular season they had accumulated a total of 77 large gobbling toms on their observation routes. The morning before our widely publicized hunt, the majority of Quantico's gobblers were heard sounding off with gusto in their territories. The next morning, our honored guest, the chief game manager, six of his assistants and I hunted every portion of that 57,000 acres of wild turkey paradise. Not one solitary gobbler could be heard serenading their girl friends! An eerie silence pervaded the entire area. The next morning, while I was in the local hospital suffering from hemorrhaging



ulcers, (obviously caused by those non-cooperative gobblers), I received a call from a friend at Quantico. He reported that every gobbler on the base gobbled lustfully, and 13 of the big trophies had been collected by hunters!

The amazing and frustrating part of this sad but true tale of woe was that all of the weather-related conditions were practically identical during all three days. Naturally, on the morning that we desperately needed their cooperation, those unreliable gobblers kept their big mouths shut!

The longer you hunt them, the clearer it becomes how unpredictable a wild gobbler can be.

Opposite: photo by Lloyd B. Hill

Twice in my long hunting career I have foolishly remained out in the turkey woods during violent thunder and lightning storms. The first time it occurred I could hardly believe it, but every time the thunder sounded and the lightning flashed, there was a gobbler down the ridge that would respond with an excited gobble. I even managed to call one up in that intense electric storm, but in my anxiety over being struck by lightning, I missed him completely.

One opening morning several springs ago, we were greeted with cold rain, thunder, lightning and even extended periods of sleet. During all of that confusing tumult, which lasted several hours, we could detect three different gobblers adding to that wild symphony of sound. After the storm subsided and the sun emerged, I called in one of those tom turkeys for a com-

panion's Easter dinner.

Even though it is considered a rarity, gobblers on occasions emit gobbles outside of their spring mating season. On eight different occasions I can recall hearing turkey toms open up during the fall-winter hunting season.

One year during the first week of November, I heard two different tom turkeys gobble in two widely separated areas under completely different weather conditions. We had been turkey hunting early in the week on a portion of the Jefferson National Forest near a mountainous retreat called Honey Springs. The weather had been calm but unseasonably warm. While attempting to call a flock of scattered turkeys to our blind, we were amazed to hear a gobbler respond with a springlike gobble. He continued gobbling as he headed up the mountain toward our blind. However at that crucial time, some bushwacker intercepted him, shot at and missed and ruined our chances for a successful fall gobbler hunt.

Two days later we drove to Highland County where a good friend had a hunting lodge. By that time, the mercury had dropped about 40 degrees and Indian summer had departed for another year. We went hunting on the top of Jack Mountain and were fortunate that my setter flushed a good flock of gobblers and hens. During the midafternoon, temperatures continued to plunge and the skies became overcast and threatening. Soon, much to our distress, it started snowing. It was not a gentle downfall but a blowing bone-chilling blizzard. Since it was so cold and not melting, the fluffy white stuff soon accumulated to a depth of about four inches. We were downright stupid or least immoderate to remain out on that mountain in a blizzard attempting to locate turkeys. We were walking down a steep trail when suddenly out of the whirling snowflakes we met another hunter headed in the opposite direction. He was in a big hurry to get out of the storm, back to his vehicle, and to get started back to his native West Virginia before the roads became impassable.

We asked him whether he had seen any turkeys in the territory we were heading into. He informed us that there was a gobbler gobbling on a spur running into the main mountain about a quarter of a mile ahead. Assuming that the fellow didn't know anything about the habits of turkeys, I asked him; "You mean yelping don't you? Tom turkeys wouldn't gobble this time of year, and especially not in a frigid snowstorm!" He insisted that he had heard a gobbler sound off a number of times. Even though we were certain that the West Virginian was mistaken, we gambled and rushed on down the mountain to the reported territory of the gobbling gobbler. We were amazed that when I yelped for the first time we were greeted by a loud lustful gobble—just like we expect to hear on a beautiful springtime morning. It was almost beyond comprehension that a gobbler could be motivated during the miserable snowstorm in November. He surely was a crazy, mixed-up bird that had his mating season calendar confused!

There was absolutely no need to build a blind. The black and white setter blended in perfectly with the snow, while our outfits were completely covered with a layer of that white stuff. I merely knelt by a large red oak, held onto the dog with my left hand and manipulated the wing bone yelper with my right. My companion stood in front of me while I continued to call that thoroughly confused tom turkey. He gobbled a total of nine times while approaching closer on each response. Eventually he emerged out of the blowing storm and my buddy dispatched an 18-lb. bird.

It is impossible to figure out the behavior patterns of wild turkeys in relation to the weather and seasons. Thus, turkey hunters should never give up on those big black game birds, regardless of the prevailing climatic conditions. Wild turkeys, like the sportsmen who hunt them, are completely unpredictable! □

Retired Game Department biologist and well-known turkey hunter, Kit Shaffer now lives in Lynchburg.

Waller Mill

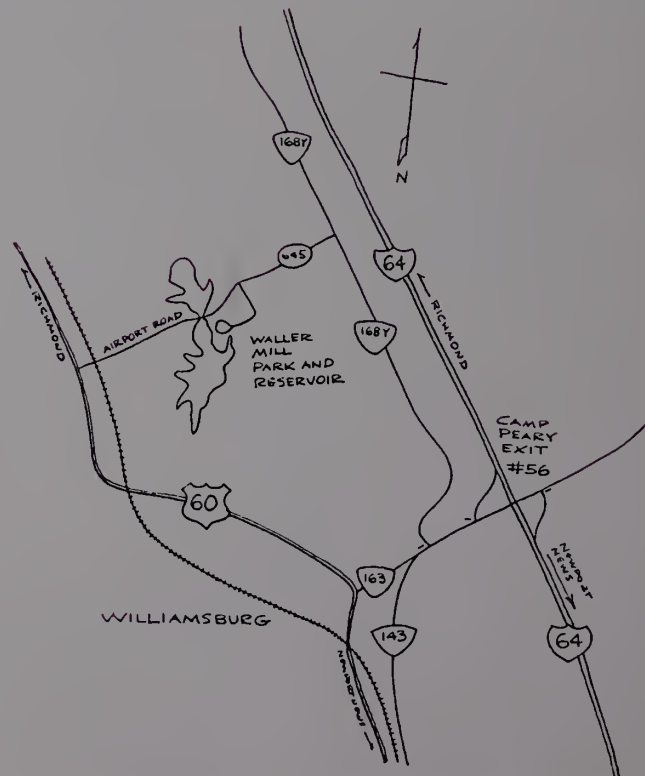
Waller Mill Pond is a 343-acre body of water located within the 2,200-acre Waller Mill Park, about four miles north of Williamsburg. It's in York County, but is owned by the city of Williamsburg. Anglers looked longingly at this impoundment on Queen's Creek for years after its purchase by the City of Williamsburg in 1945, because fishing wasn't allowed at the time.

In 1971, the Commission of Outdoor Recreation approved a request to begin the first phases of a park development plan with the help of money from the Land and Water Conservation Fund. In 1972, the impoundment was opened to fishing. Waller Mill's shores are shrouded with large, beautiful trees and brushy shores, offering hiding places for a variety of fish. Actually, there are two bodies of water there, which are connected by a culvert through which a small boat can travel. The lower section of the lake is the deeper, clearer portion, with depths of just over 20 feet, while the upper section is shallower, weedier and murkier. The average depth of the two portions is 12 feet. The lake contains largemouth bass, bluegills, crappies, redear sunfish, rock bass, yellow perch, channel catfish, and most recently, striped bass.

Don't necessarily look for a lot of citations out of this little lake, but don't be surprised if you tie into one either. Fisheries biologists samplings occasionally come up with five to seven-pound bass. Recent samplings, according to Fish Biologist Ron Southwick, reveal that "the fishery is in pretty good shape" with good numbers of harvestable bass and bluegills. He says there are many bass in the 12-inch or better class and many bluegills in the eight-inch range. Southwick says that many younger fish were recorded, also meaning that there is a good bal-



Map and photo by Spike Knuth



Pond

A Fishing Profile

ance to the population and good reproduction. The largemouth are more often seen, however, than caught. Waller Mill's lower section waters are clear, often revealing bass prowling the dropoffs. However, if the angler can spot the bass so easily, the bass can obviously spot the angler and his boat. They reportedly pay little attention to lures dangled or worked in front of them. Many quarry bass react in this way, and you might have to use similar tactics on Waller Mill bass. Often these type of bass can be caught more readily at night. However, since the park closes at sunset, they can't be fished at night. Vandalism and safety factors make it necessary to close the park at night, which is understandable.

Another alternative to trying to catch bass in these clear waters is to fish them in spring when they tend to be less wary or more aggressive—whichever way you want to look at it—during spawning, or after a rain when the water is clouded, or maybe on dark, overcast days. Also, keep your terminal tackle as free of hardware as possible to avoid spooking the fish, and be as quiet in the boat as possible when approaching the areas you plan to fish. The fact that live minnows are now legal should help put more bass on the stringer.

Big bluegills, redear and crappies are fairly abundant, too. Again, try to approach quietly and make as long a cast as possible using small jigs, beetle spins or other similar proven panfish-getters. Look for crappies in sunken brush, close to shore during spawning. Use small minnows, and in deeper water in the summer, use jigs. Fish close to shore on or near the bottom for redears, because that is where they feed. In all cases, April and May are best, because that is spawning time, and the fish will be on the beds and easier to locate. Later in summer, when they go deeper, try slow-trolling

by Spike Knuth

or drift-trolling parallel to the shore where the bottom drops off, or across and around deep points.

Southwick adds that there is a good population of big yellow perch as well, and the lake not only has produced some citation yellows but has the distinction of holding a world record in the 12-lb. line class for yellow perch.

The latest challenge for Waller Mill anglers are the landlocked striped bass stocked by the Department of Game and Inland Fisheries beginning in 1980. Not a typical species for a small lake, stripers are especially active in spring and again in fall when they roam the lake in schools, looking for shad—the main forage fish in the lake. Trolling or deep-jigging are probably the best ways to catch stripers in summer, while casting during spring and fall with lead-head jigs, rapalas, rebels, shad raps, sassy shads or with large live minnows. Stripers up to 15 pounds have been taken out of Waller Mill. Look for them around any kind of current or moving water. Anglers can keep four stripers, but they must be 20 inches long or more.

Fish populations are regularly monitored by Fish Division personnel as they check populations and growth rates, and you may see them working the lake with their nets in spring or fall.

Facilities include a boat dock and landing, with canoe and boat rentals,

and a concrete ramp for small boats and canoes. Boat rentals cost up to \$3 per licensed fisherman per day while launching a private boat costs up to \$2 per licensed fisherman. Electric motors only are allowed, but the park doesn't rent them. Only boat cushions, life preservers, paddles and oars are rented along with the boats. Your Virginia state license must be surrendered to the park while you fish and will be returned upon the return of all city equipment. Licenses and bait are not sold at the concession office. No shore fishing is allowed except from off the fishing pier near the concession office.

There's more to do than enjoying the fishing opportunities there, though. There are three hiking trails varying in length from a mile and a half to three and a quarter miles long; a one mile fitness trail, three shelters which can be rented; numerous picnic tables and grills; playing fields; playground equipment and a comfort station. Pedal boats are available and swimming is prohibited.

Another plus for this attractive little lake is that it is close to Colonial Williamsburg, Jamestown and York River State Park.

Waller Mill is on state secondary highway 645—the Airport Road—between U.S. 60 and I-64. It is best reached from I-64 by taking the Camp Peary exit, then turning right on Route 168 which runs parallel to I-64, and travels back to 645. The park opens around late March and stays open until late November or early December. For more information, call the park at (804) 229-2855 or the Williamsburg Department of Recreation at (804) 229-4821.

Waller Mill Pond is an excellent place to take the family, teach your youngsters to fish or just get out for a restful day on a quiet lake. □

Spike Knuth is a staff writer and artist for Virginia Wildlife.

HABITAT:

It's not as
simple as it looks.

(There's
much more to
it than just
food and
cover)

by Steven M. Martin

"Habitat is where an animal makes its home."—Eugene Odum, *Principles of Ecology*.

Mention habitat to a wildlife biologist or a game manager, and odds are good that he or she will talk about vegetation. Wildlife habitat management usually means managing vegetation. Yes, trees, grass, and shrubs are wildlife habitat, providing wildlife species with food, shelter from the elements, and cover from predators. But, wildlife habitat also includes the land on which animals live. Researchers at Virginia Polytechnic Institute and State University (VPI & SU) are examining soil science, hydrology, and

even geography to get a better understanding of wildlife habitat. Landscape patterns, particularly, like the sequences of alternating ridges and valleys that characterize parts of southwestern Virginia, affect the distribution of vegetation and wildlife.

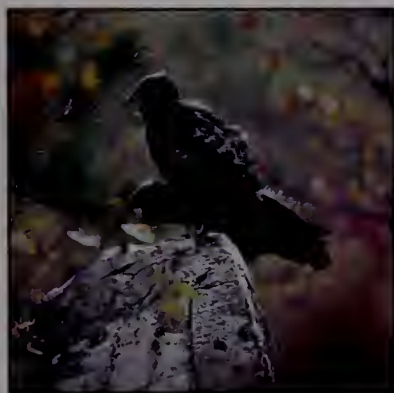
Consider for a moment how warm the sunshine felt on that south-facing slope last January, when five minutes earlier on the other side of the knob you thought you would freeze. And what about that icy wind you hadn't noticed until you turned back and headed down the other side of that knob? Remember how cool that hemlock grove was back in August, after the hot walk along that ridge? Animals

must respond to those same conditions. Though animals do grow or shed winter coats, fluff their feathers, or bask in the sun, they can't go indoors to escape the elements. Their only alternative is to find a favorable place to live.

Landscape or terrain effects on animals are often subtle. Terrain influences vegetation and wildlife primarily through its effects on climate. The height, shape, and arrangement of land masses mold regional and local weather patterns. For example, the windward side of the Appalachians receives more precipitation than the lee side. Changes in elevation, slope, and compass direction influence local temperatures, pre-



Landscape and terrain influences wildlife more than we normally think. The elevation, slope and compass direction of a site play a big role in whether or not an animal will frequent a site—particularly in the winter. Above: White-tailed deer; photo by Michael P. Gadowski. Far right: Tufted titmouse; photo by Vinyard Brothers. Right: Black vultures; Department staff photo.



cipitation, winds, and even soil moisture. On the average, temperatures decrease 1° F for every 330 feet increase in elevation. South and southwest-facing slopes receive more sunlight than other slopes and are subjected to higher daily temperatures. Soils on these slopes tend to dry out more quickly than those on northerly slopes. In response to gravity, soils are generally thicker and more moist in valleys and hollows than along ridges. Land features, like mountains, valleys, or hills channel winds toward or deflect them away from sites.

These factors are reflected in a site's vegetation. Nowhere is this more apparent than in southwest Virginia.

Walking along a bottom, over a ridge, and down into the next valley, one may encounter a range of forest types. Bowl-shaped, north-facing slopes and hollows are where the northern hardwoods (stands with sugar maple, basswood, or yellow birch) are found. Average daily temperatures lower than those at other exposures, and a cupped surface that concentrates soil moisture makes these sites most suitable for the northern hardwoods. The oaks dominate the straight valley-side slopes. Chestnut oaks, table mountain, and pitch pines dominate the dry south- and southwest-facing ridges and convex slopes. Other less obvious species, like the striped maple, are often most

abundant in cooler sites, like north-facing slopes or coves. All of these plants play special roles in the lives of different game animals.

Terrain, acting through vegetation, has substantial effects on the distribution of many wildlife species. Some of the best examples are wildlife species that are near the limits of their range here in Virginia. Species like the smoky, northern water, and long-tailed shrews, rock voles, snowshoe hare, or the New England cottontail, are restricted to vegetation types that occur at higher elevations or on northerly slopes in Virginia. Some species, like the wood frog or the northern flying squirrel may be considered relicts that

Terrain & Wildlife

Above 3500 feet, the spruce-fir zone is a rare habitat in Virginia, as are the species that are found in them, like the wood frog, the northern flying squirrel, the snowshoe hare, and three species of shrews. Terrain, in this case, has limited these species, and has isolated them in so-called "island communities."

Playing an important role as cover, cliffs, caves, exposed rocky outcrops and talus slopes are roost and reproductive habitats for bobcats, bats, mice, vultures, and reptiles.

During deep winter snows, deer are likely to be found on steep, windswept, southerly slopes, since because of the wind and the solar radiation, snow is not likely to be as deep in this area. The warmth of a southern slope also attracts many of our winter resident birds, like chickadees, cardinals, titmice, and downy woodpeckers. Chestnut oaks, table mountain, and pitch pines dominate these slopes.

were once widespread in the state, but appear to have retreated upslope and northward with the warming of Virginia's climate since the withdrawal of the last great glaciers 10,000 years ago.

In Virginia, the northern flying squirrel is confined to northern hardwoods or northern coniferous forests. These vegetation types are not usually found below 3500 feet in this state. Terrain may be a barrier to this species, restricting it to islands of suitable habitat, surrounded by a sea of lower forests. Similarly, four salamander species are limited to the highest mountain tops of the Blue Ridge, including the spruce-fir zone of the over 5,000-foot Mt. Rogers and White Top Mountain.

What about all the other species, the game and nongame wildlife species

that are quite at home throughout the state? Terrain is an important habitat component for many of these species as well. Topography shapes the energy conservation strategies and the distribution and movement of many species. In cold weather, more of our winter resident birds, like chickadees, cardinals, titmice, and downy woodpeckers are found on south or southwest slopes than on northerly slopes. In winter, a south-facing slope may receive as much as twice the solar radiation that falls on a north slope. Therefore, one is more likely to encounter reptiles like the five-lined skink on southern than northern slopes in the winter. In Virginia, juncos and yellow-bellied sapsuckers breed at higher elevations, and migrate to lower elevations for the winter. The introduced

elk herds that once roamed Giles and Craig counties wintered primarily on south slopes and at low elevations. They summered mainly on northerly slopes at higher elevations. All of these examples suggest energy conservation strategies by these species.

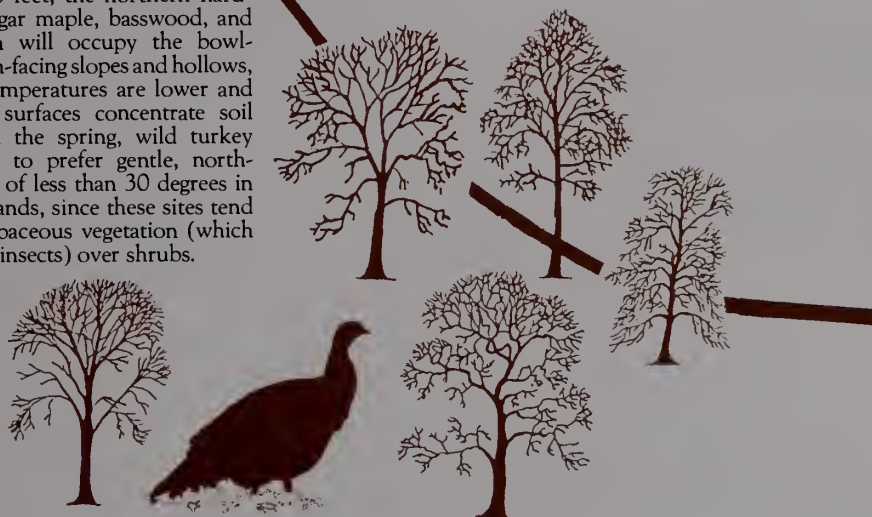
During periods of deep winter snows, deer are likely to be found on steep, windswept, southerly slopes. Because of wind and solar radiation, the snow is not likely to be as deep on these slopes as in the valleys, so food may be easier to find and movements demand less energy.

Game trails suggest that terrain may place heavy demands on an animal's energy stores. Travelling over rugged terrain requires a lot of energy, as anyone who has hunted in the mountains can attest. Domestic sheep require

This simple drawing illustrates how vegetation and wildlife respond to compass direction, terrain features, and elevation. On a typical southwest Virginia mountain in winter, different species will inhabit different parts of the mountain, depending on the temperature of the site, soil moisture, wind deflection, slope and other terrain factors.

above 3500'

Below 3500 feet, the northern hardwoods of sugar maple, basswood, and yellow birch will occupy the bowl-shaped, north-facing slopes and hollows, where the temperatures are lower and the cupped surfaces concentrate soil moisture. In the spring, wild turkey broods tend to prefer gentle, north-facing slopes of less than 30 degrees in white oak stands, since these sites tend to favor herbaceous vegetation (which means more insects) over shrubs.



11 times more energy to climb uphill than to walk on flat land. Even if game species are better adapted for climbing than domestic sheep, climbing still demands a lot of energy. As a result, game trails tend to follow the easiest routes over terrain. These trails usually converge on saddles, and diverge on slopes and flatlands.

Terrain also affects reproduction strategies of some of our game species. The average litter size of cottontails is known to decrease as elevation increases. Furthermore, the reproductive season is delayed as elevation increases.

Terrain is an important aspect of cover for many of our species. Caves, cliffs, exposed rocky outcrops, and talus slopes are important roost and reproductive habitats for such diverse

species as ravens, vultures, bats, mice, bobcats, and many reptiles.

Perhaps the best example of terrain's importance as a component of wildlife habitat is found in the study of one of our most important game species, the wild turkey. Research in West Virginia revealed that wild turkey broods preferred gentle, north-facing slopes (less than 30 degrees), in white oak stands. These findings make sense when examined closely. Gentle slopes suggest sites in or near valley bottoms, at least closer to permanent water than ridges are. These moist sites might be more suitable for white oaks than steeper sites. Cooler, north-facing slopes might tend to favor herbaceous vegetation over shrubs, and thus be more suitable to the insect prey of these broods.

Terrain, through effects on climate, vegetation, and animal energy budgets is an important (even if often overlooked) part of wildlife habitat. A knowledge of the role that terrain plays on the distribution of wildlife may help the naturalist determine the best places to find birds, mammals, and reptiles at different times of the year. Knowledge of terrain may also improve a hunter's ability to locate game in bad weather. So, when we think about wildlife habitat, we need to consider the terrain as well. Habitat is more than vegetation. □

Steven M. Martin is currently a Natural Resources Specialist with the U. S. Navy and recently graduated from V.P.I. & S.U. with a M.S. in Fisheries and Wildlife Sciences.

1989 Trout Stocking Plan

The season will open at 9:00 a.m. on the third Saturday in March (March 18) and end on February 1, 1990. As of now, the fishing outlook is fair to poor due to low stream flows. Stream flows over most of the state remain below normal, except for some southwest counties, where flows are about normal. Should the dry weather persist, problems are expected to arise concerning the stocking of trout. The stocking of some streams in April and May may be cancelled due to low stream flows and resulting lack of habitat. This will become more pronounced as the demand for soil moisture by trees and shrubs producing leaves and new growth increases.

Few changes will be noted in streams to be stocked this year. The only changes noted involve the addition of Green Creek in Franklin County and the upper portion of Swift Run in Greene County. As has been the practice over the past two years, all in-season stocking will be unannounced.

	Brook	Rainbow	Brown
ALBEMARLE COUNTY			
Moormans River (N.& S. Forks)	X		
City Water Works (Sugar Hollow)	X		
ALLEGHANY COUNTY			
Smith Creek*	X		
Jerry's Run*		X	
Pounding Mill Creek		X	
Clifton Forge Reservoir*	X		
AMHERST COUNTY			
Pedlar River (Upper)	X	X	
Pedlar River (Lower)		X	X
Piney River (S.Fork & Proper)	X		
Davis Mill Creek*	X		
Little Irish Creek*	X		
AUGUSTA COUNTY			
North River (Gorge)		X	
North River* (Upper)	X		
Falls Hollow* (Buffalo Branch)	X		
Braley Pond*		X	
Back Creek (S.Fork & N.Fork)		X	
Upper Sherando Lake*		X	
Lower Sherando Lake*		X	
Hearthstone Lake*		X	
Elkhorn Lake*		X	
Mill Creek	X		
BATH COUNTY			
Back Creek*	X	X	
Pads Creek*		X	
Jackson River (Hidden Valley)		X	X
Jackson River* (Route 623)		X	X
Bullpasture River		X	X
Spring Run	X	X	X
BEDFORD COUNTY			
Hunting Creek*	X		
BLAND COUNTY			
Lick Creek*	X	X	
Wolf Creek		X	X
Laurel Fork Creek	X	X	
BOTETOURT COUNTY			
Jennings Creek	X	X	
North Creek*		X	
Middle Creek*		X	
McFalls Creek*		X	
Roaring Run		X	X
BUCHANAN COUNTY			
Dismal River	X	X	
Hurricane Fork		X	
CARROLL COUNTY			
Big Pauls Creek	X		
Crooked Creek	X	X	X
Laurel Fork Creek	X		
Little Reed Island Creek		X	X
Lovills Creek		X	
Snake Creek (Fish-for-fun)		X	X
Stewarts Creek	X		
CRAIG			
Barbours Creek	X		X
North Fk. Barbours	X		
Cove Creek	X		
Potts Creek	X	X	X
DICKENSON COUNTY			
Frying Pan Creek		X	
Russell Fk.-Haysi		X	
Russell Fk.-Bartlick		X	X
Pound River		X	X
FLOYD COUNTY			
Burkes Fork	X		X
Goose Creek		X	X
Howells Creek	X		
Laurel Fork Creek	X		
Little Indian Creek		X	X
Little River		X	X
Mira Fork Creek	X		
Rush Fork Creek	X		
Little River (W. Fork)	X	X	

	Brook	Rainbow	Brown		Brook	Rainbow	Brown
FRANKLIN COUNTY				ROCKBRIDGE COUNTY			
Maggadee Creek		X	X	Mill Creek	X	X	X
Green Creek	X	X		Irish Creek	X	X	
Runnett Bag Creek		X	X	South River		X	X
FREDERICK COUNTY				Maury River (Goshen Pass)		X	X
Back Creek		X	X	ROCKINGHAM COUNTY			
Hogue Creek		X	X	Shenandoah River (N. Fork)		X	X
Cedar Creek	X	X	X	German River		X	
Clearbrook Lake	X	X	X	Dry River	X	X	
Winchester Park Lake	X	X	X	Silver Lake	X	X	X
Paddy Run		X	X	Shoemaker River-F.S. ¹			X
Paddy Run (F.S.)		X	X	Hone Quarry Lake		X	X
GILES COUNTY				Hone Quarry Run*		X	
Big Stoney Creek	X	X	X	Briery Branch Lake*		X	X
Dismal Creek*	X			Briery Branch		X	
GRAYSON COUNTY				RUSSELL COUNTY			
Big Wilson Creek	X	X		Big Cedar Creek	X	X	X
Middle Fox Creek	X	X		SCOTT COUNTY			
Big Fox Creek	X			Little Stony Creek, Upper	X	X	
Elk Creek		X	X	Little Stony Creek, Lower	X	X	
Helton Creek	X	X		Stock Creek		X	
Hales Lake		X		Big Stony Creek	X	X	
GREENE COUNTY				Straight Fork-Lower		X	
Lynch River		X		SHENANDOAH COUNTY			
Swift Run-Upper		X		Big Stoney Creek	X	X	X
South River	X	X	X	Mill Creek	X	X	X
Smith River-Dam	X	X	X	Cedar Creek (FS)		X	
HENRY COUNTY				Tomahawk Pond*		X	
Smith River (Dam)	X	X	X	Little Passage Creek*		X	
Smith River (Lower)		X		Passage Creek	X	X	X
HIGHLAND COUNTY				Peters Mill Creek*		X	
Bullpasture River	X	X	X	SMYTH COUNTY			
Potomac River (S. Fork)	X	X	X	S. Fork Holston River (Lower)	X	X	X
LEE COUNTY				S. Fork Holston River Gorge*		X	
Martin's Creek	X	X		Staley Creek		X	
Powell River (N. Fork)	X	X		Middle Fork Holston River		X	X
MADISON COUNTY				Comer's Creek*		X	
Hughes River	X	X		Hurricane Creek*		X	
Robinson River	X	X	X	Cressy Creek*		X	
Rose River	X	X		Dickey Creek*		X	
Garth Run		X	X	Lick Creek	X	X	
MONTGOMERY COUNTY				TAZEWELL COUNTY			
Craig's Creek*		X	X	Wolf Creek		X	X
Poverty Creek*		X		Cove Creek	X	X	
Roanoke River (S. Fork)		X	X	Laurel Creek	X	X	
Tom's Creek		X	X	Roaring Fork	X	X	
NELSON COUNTY				Little Tumbling Creek	X	X	
Tye River	X	X	X	WASHINGTON COUNTY			
Tye River (N. Fork)	X			Whitetop Laurel-Upper	X	X	X
S. Rockfish River ¹	X			Whitetop Laurel-Lower		X	X
PAGE COUNTY				Tennessee Laurel		X	X
Cub Run		X	X	Green Cove Creek	X	X	
Upper Passage Creek		X		Big Brumley Creek*	X	X	
PATRICK COUNTY				Valley Creek	X	X	
Ararat River	X	X		Big Tumbling Creek*	X	X	
Big Ivy Creek	X	X		Straight Branch*		X	
Dan River (above Powerhouse)	X			Beartree Lake*		X	
Dan River (below Powerhouse)		X	X	WISE COUNTY			
S. Mayo River (N. Fork)		X	X	Middle Fork Powell River	X	X	
Poorhouse Creek	X			Mountain Fork*		X	
Rock Castle Creek	X	X		Clear Creek*		X	
Round Meadow Creek	X			Burns Creek*		X	
S. Mayo River (S. Fork)	X	X		WYTHE COUNTY			
PULASKI COUNTY				Stoney Creek*		X	
Peak Creek (W. Fork)		X	X	Gullion Fork Creek*		X	
ROANOKE COUNTY				W. Fork Reed Creek*		X	
Glade Creek		X	X	Gullion Fork Pond*		X	
Roanoke River-Roanoke		X	X	Francis Mill Creek	X		
Roanoke River-Salem		X	X				
Tinker Creek		X	X				

¹—these streams will not be stocked preseason
 *National forest waters

Family Outdoors

Spike Knuth

Purple Martin Time

One of the most-asked about birds at the Virginia Game Department offices is the purple martin. Questions come in like, "When do they arrive?" "When should I put the house up?" "How big should the entrance holes be?" "How can I keep the sparrows out?"

It won't be long now, and we'll be seeing the largest of our swallows. Martins begin arriving about mid-or late March, depending on seasonal conditions. The first birds to appear are referred to as "scouts," the belief being that they've come on ahead to "scout out" the housing situation. More than likely though, they are early arriving males, merely preceding the females back to the same area they nested in last season—a trait that is probably common to many if not most or all species of birds.

Actually, adult male purple martins are more blue-black than purple. Some people call them black martins or house martins. The later arriving females are blue-black above, mottled gray on the throat and whitish on the belly. When fledged later in the season, the young will look similar to the females. Martins measure about eight inches in length with their folded wings extending beyond a slightly forked tail.

The martin is a bird of open grassy valleys or meadows and parks along rivers, lakeshores, marshes and coastal waters. Its breeding range extends from west central Alaska, east to Nova Scotia, as far south as central Mexico and east to Florida. Supposing it had no man-made structures to nest in, the martin might nest in holes or ledges on cliffs or in swamps of decaying trees with an abundance of cavities. It's likely that martins, and similar species around the globe, have been nesting in man-made structures, almost from the time the two came in contact with each other.

The cheery, gurgling calls, rapid

aerial acrobatics and the fact that they consume huge quantities of pesky insects have made them a favorite companion of man. Native Americans apparently valued their company or they wouldn't have bothered to hang hollow gourds in trees or on poles to attract colonies of martins.

Those of the present-day who would like to attract martins to their yard can probably find ready-built, multi-roomed, two or three story martin houses at lawn and garden shops or departments, or from seed and nursery catalogs. The house should be erected in an open area, 20 feet or more from any trees or buildings., Martins like a little flying space around their houses. If the location is close to utility wires and TV antennas, that's fine with the martins. It gives them an abundance of perching space. A source of water in the form of a small pond or lake will make the location more attractive.

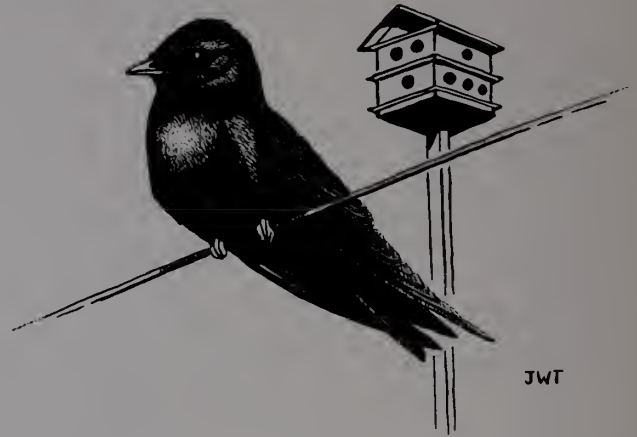
The house should be put up in early March, just prior to the "scouts" arrival. Many experienced martin-lovers have found that the scouts show up around March 10 through 16th. The house should be 15 to 20 feet off the ground and, if you build your own, should have entrance holes of two and a half inches in diameter. The house should be preferably mounted in such a manner that it can be raised and lowered like an elevator. This is important in not only cleaning the

house at the end of the season, but in keeping the sparrows out. Sparrow nests must be regularly purged from the house until the martins can take charge.

Should the martins take to a new house and begin a new colony, it will usually be by martins from another colony close by that has increased its numbers and needed to expand. Sometimes it takes a while to start a new colony.

When they build their nests, they use mainly grasses and feathers, maybe bound together with a little mud. About three to eight white eggs are laid. Once hatched out, the young are fed by both parents and it is a very busy and active time. The young grow rapidly on a diet of insects.

Martins will defend their nests with tenacity, attacking dogs, cats, hawks, crows and people that get too close to a house containing young. Probably the biggest threat to the young birds, however, is the heat buildup within the house. The compartments should probably be larger than most directions call for and they should be properly ventilated. In less than a month, the young leave the nest, and in August, flocks of martins begin gathering, lining wires, antennas and rooftops. They migrate through Mexico and Central America, Venezuela, and Guyana, to their main wintering grounds in Brazil. □



Letters

January Issue

I have just finished reading the January 1989 issue of *Virginia Wildlife*. I am writing to tell you that in my opinion this is the most outstanding issue not only of *Virginia Wildlife*, but of any other wildlife magazine I have ever seen.

I am a Vocational Agriculture teacher in Powhatan County. My duties include teaching our natural resources management class as well as teaching the Virginia hunter safety course. I believe that the information in your January 1989 issue can be of great help to us in our program. Thank you very much and keep up the good work.

R. T. Walton
Powhatan Voc. Center

Maybe I'm seeing things, but maybe not. Maybe it's just of sign of the times and that really is a beer can in the lower front of the beautiful winter scene photo by Shirley M. Whitenack, on the back cover of your January issue.

Either way, I love the scene. I just wish there were fewer beer cans.

Harold Scott

Need Title

I have just read your editorial in the December '88 issue. Do you really believe what you say? "I should like to be able to walk up to a stranger's door without apprehension—with an eagerness, instead, and a desire to share with him the joy of his land."

I own 120 acres of mostly woods. I assure you it is well posted. Just because I own it does not require me to desire to share it with anyone. Let's reverse the scenario. I come unannounced and unknown to *your* door. Will *you* smile at me and welcome me to share *your* (self described) small lot? I come, perhaps gun in hand, intending to kill whatever crosses your lot. You undoubtedly have no deer, but you may well have rabbits or squirrels. You'll be glad for me to kill them? Come on now. The size of one's property makes no difference.

I allow a handful of men to hunt deer on my land, but not because I owe this to any of them. Except for one, I did not even know them before they asked. I do not hunt and could not. However, I do understand our deer population is out of control in our part of Bedford County. Living with malnutrition and disease or even starvation is worse in my view than being killed with a bullet, which is the only reason I allow these men access.

I don't need my "own personal messenger of the wonders of my land" any more than you do on yours. If you want the experience of hunting on "shared" land, use publicly owned land. That's what it's been bought for.

Barbara McEwan
Goode

Having been on both sides of the hunter-landowner issue, I can identify personally with everything in your December editorial except your characterization of landowners as individuals who, through some defect of energy or sensory organs, need hunters to be "their own personal messengers of the wonders of their land." I know very intimately what things and events occur naturally on my land, though I am not always sure of the people and what they do.

Yes, sometimes I do feel selfish for having posted my land and refused most requests to hunt, and almost yearn for a few trustworthy persons who would tread lightly on the land, look without destroying, and hunt in moderation to share the pleasures with me. Unfortunately, long experience has made me more apprehensive of the alternative than guilt-ridden for the posting.

Once I gave a gentlemanly friend permission to hunt quail on my farm. When he arrived accompanied by another hunter who was a total stranger to me, and his dog, my enthusiasm for the idea flagged considerably. If one can't predict what his friends will do, what can he know of strangers? I don't want hunters who empty their 5-shot

magazine at running deer in my woods. I don't want hawks, foxes, owls, chipmunks and woodpeckers shot. Which unknown hunter who knocks at my door is a sportsman, and which wanton and trigger-happy? It almost seems irresponsible and uncaring for the land and its creatures to grant permission to hunt to strangers. Some interpret one-day permits as perpetual, and bring their friends back uninvited. Few of them can control their dogs and keep them where they belong—especially beagles and coon hounds. Some shoot nongame species for target practice. I have seen it all, and though I have been an avid hunter all of my life, I almost dread the advent of hunting season.

It is disconcerting that a landowner is forced each fall to assume the role of a judge, with no better evidence to guide him than his own sometimes-bitter experiences and the inscrutable faces of petitioning hunters, knowing that to err in one direction denies him the privilege of an act of friendship and generosity to someone who may be a fine person and sportsman, but to err in the other direction puts in jeopardy things for which he has worked hard and holds dear, at the hands of a vandal. There is an understandable tendency to avoid this recurring dilemma by posting everything and answering the knocks on the door with a firm, non-negotiable, "The land is posted." There are many thousands of acres of public hunting land in Virginia for the use of hunters who do not own land, and no one can say that he has been denied the privilege of hunting.

What can be done to resolve this problem? I fear that at some future time a coalition of urban and suburban non-hunters, together with the increasing number of disillusioned landowners, may pass legislation which will curtail hunting drastically, except on private paid preserves. Hunting is a form of recreation, like tennis, not a civil right, and it is self-defeating for hunters to pretend anything else.

R. E. Rapp, M.D.
Weyers Cave

Etc.

Charge It—For Wildlife



The Virginia Wildlife Federation invites you to apply for their newly-created Wildlife MasterCard which will donate 30% of its proceeds to funding the programs of the Virginia Department of Game and Inland Fisheries. Every time you use this Wildlife Card, a donation will be made to the Game Department to

fund fish and game management, non-game and endangered species conservation, land acquisition and development projects, and hunter safety education. Cardholders also receive additional benefits, such as:

- no annual fee for two years
- competitive variable interest rate

tied to prime and offered those who qualify based on income

- free \$200,000 common carrier accident insurance when tickets are purchased with your Wildlife Card
- cash advances worldwide at over 115,000 locations
- acceptance by over 4 million merchants in 140 countries worldwide
- free second card for family members
- skip-payment option allows qualified cardholders to skip payments during designated months
- discounts on rental cars from leading national companies

For a Wildlife Card application form, please contact the Virginia Wildlife Federation, 4602-D West Grove Court, Virginia Beach, VA 23455, 804/464-3136. □

Subscribe to Virginia Sportsman Quarterly

The Virginia Department of Game and Inland Fisheries is now producing a quarterly newspaper specifically designed for the hunters and fishermen of the state. It contains important Virginia hunting and fishing news, including where to go and when, outdoor tips, what your Game Department is doing to help conserve the wildlife populations of the state, plus other important news and information affecting our wildlife resources.

You need to subscribe now! For only \$2.00 a year, or \$6.00 for three years, you can't beat the bargain. Send your check (not cash, please) and the completed form below, and we'll keep you updated on your favorite sports—in your favorite state!

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Safety

Emergency Repairs Afloat

You need not be a mechanic to make elementary repairs at sea. With the right tools and common sense, you may save your boat or your life and have the satisfaction of having done it yourself. As a minimum, you should carry pliers, a vice-grip wrench, spark plug wrench, medium and small screwdrivers, both regular and double-slot, and a hammer. Parts should include shear-pins, if your motor uses them, cans of engine oil, pins, nails, screws, bolts, washers, wire, tape, coil, condenser, spark plugs, distributor points, fuel pump, distributor head and rotor, fuses and light bulbs. Don't forget your pocket knife.

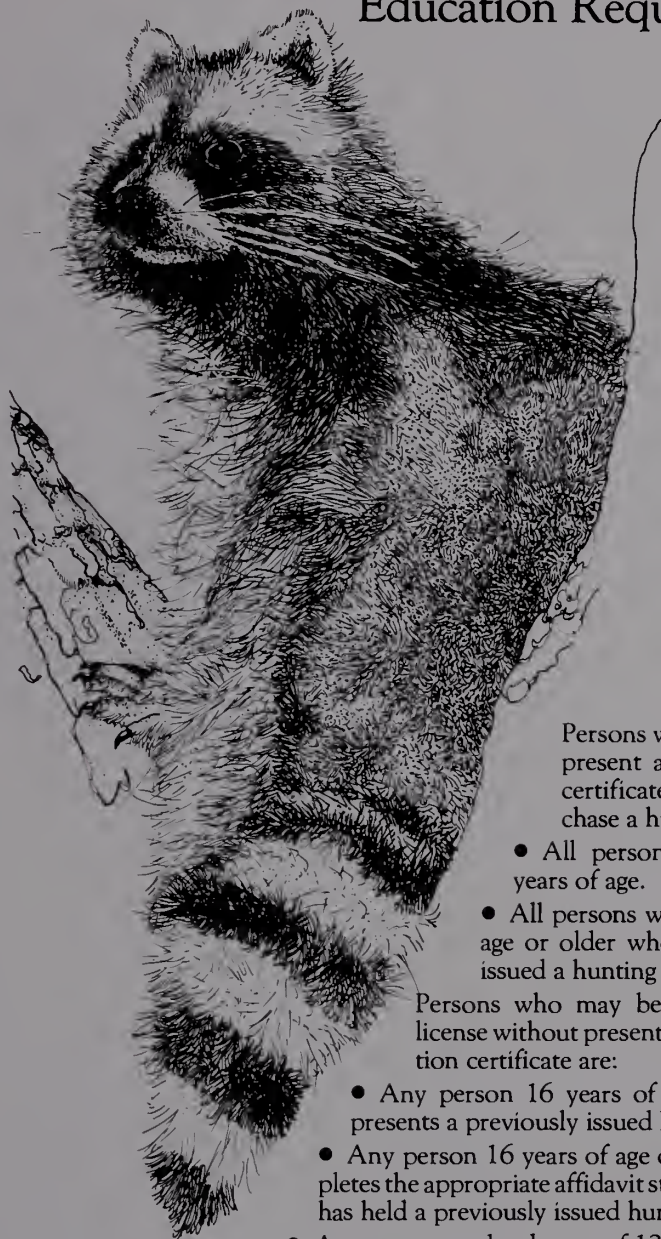
Now a look at some problems. When the battery doesn't work, remove the terminals, clean and replace them. If the engine doesn't start, it is wise to look for corroded, dirty, damaged, or loose connections. An inspection of damaged wires leading to spark plugs and from the coil to distributor cap may reveal the problem.

To see if there is spark, hold a spark plug wire 1/4-inch from the engine with the ignition switch on and cranking the engine. Do not hold a bare wire while cranking the engine. If spark occurs, that is not the problem. If no spark occurs, remove a secondary wire from the distributor cap to the coil and repeat the 1/4-inch test. If a spark occurs, the boat may be out of fuel.

To see if an engine is getting fuel, remove a spark plug. If the plug is completely dry, use the main jet adjustment on the carburetor to increase fuel flow. If the plug is wet, it indicates flooding caused by using the choke too long.

Always check the fuel before leaving port. Never cruise farther than one third of your fuel supply, saving two-thirds for your return trip. Before making any electrical checks, make sure bilges and engine compartments are free of explosive vapors.—William Antozzi, Boating Safety Officer

Mandatory Hunter Education Requirements



Persons who are required to present a hunter education certificate in order to purchase a hunting license are:

- All persons who are 12-15 years of age.
- All persons who are 16 years of age or older who have never been issued a hunting license.

Persons who may be issued a hunting license without presenting a hunter education certificate are:

- Any person 16 years of age or older who presents a previously issued hunting license.**
- Any person 16 years of age or older who completes the appropriate affidavit stating that he or she has held a previously issued hunting license.
- Any person under the age of 12.*

* The law requires youngsters (under the age of 12) to be accompanied and directly supervised by a parent, legal guardian or an adult designated by the parent or guardian while hunting.

** Virginia accepts and recognizes all states' and countries' hunting licenses and hunter education credentials. This may be in the form of an identification card or certificate.

Hunter education courses are held free of charge throughout the Commonwealth at various times of the day and night and weekends. These 10-hour courses satisfy the mandatory hunter education requirement, and information on courses in your area can be obtained from your game warden or by contacting the VA Game Department at 1-800-252-7717.

Habitat

Nancy Hugo

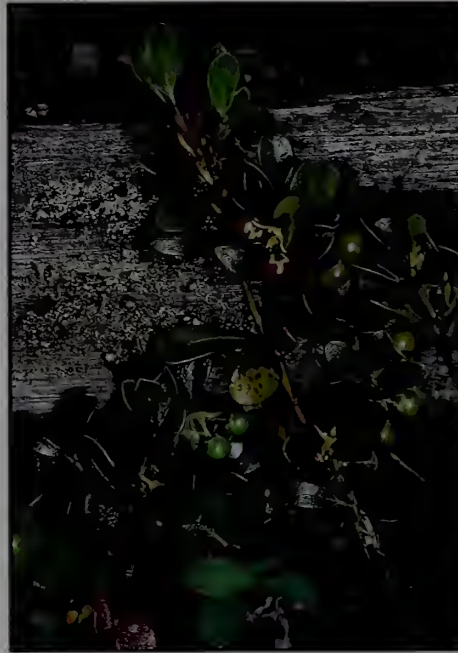
Groundcovers

Wish you didn't have to cut the grass so you could get out into the country and see some wildlife? Funny thing is, if we cut less grass, we'd have both more time in the country and more wildlife at home.

Don't get me wrong. I'm one of those rare souls who even enjoys mowing. There's something satisfying about all those clean sweeps and straight edges. But it doesn't take much of a lawn to satisfy my mowing urge, and it probably takes even less to satisfy the needs of ground-feeding birds.

Robins, grackles, and flickers enjoy feeding in closely cropped lawns, but towhees, thrashers, and many native sparrows prefer poking and scratching for insects, worms, and other invertebrates in areas covered in leaf litter. One researcher found two-thirds more young birds feeding in the moist, earthworm-rich leaf litter than in the lawn, and one expert suggests these areas are so productive we should call them "leaf litter feeders."

The beauty of these leaf litter feeders is that they want to make themselves. Nothing is more natural than leaving leaves where they fall, but it's no great shakes either to rake them into a well-defined area like an island bed under trees or an apron around shrubs. If you want to make sure it all looks tidy and intentional, you can define the area with a hose, then dig a shallow trench around it. You won't need to till the area or kill the grass. Last year I raked about a three-inch layer of leaves into an island bed and threw some straw over the leaves to hold them down. In the spring, only a few blades of grass made it through the leaf litter, and they were easy enough to pull. If violets invade the area, so



Bearberry; photo by Rob Simpson

much the better; they provide larval food for butterflies. You can also enliven the area with bulbs or impatiens; sparrows will love the impatiens seeds.

Another valuable alternative to lawns is planting berry-bearing groundcovers. Groundcovers like ivy and pachysandra may provide small birds and mammals with a place to hide, but there are berry-bearing groundcovers with greater value to wildlife. Bearberry and cotoneaster, for example, are low growing shrubs that provide both food and cover for wildlife.

The most popular cotoneaster is the Rockspray cotoneaster which has a horizontal growth habit, bright red berries prized by birds and chipmunks and semi-evergreen leaves. There are also evergreen cotoneasters like *Cotoneaster dammeri* which has glossy green leaves that turn brilliant reds, yellows and oranges in the fall. If you ask your nurseryman for cotoneaster, be sure to pronounce it "Kah-tone-ee-aster," not "Cotton Easter" as I did for many years.

Bearberry, a plant with a botanical name you shouldn't even try to pronounce—*Arctostaphylos uva-ursi*, is also a great groundcover. In full sun or partial shade, this shrub forms broad six-inch mats of dark green oval leaves that turn bronzy in the fall. Its scarlet berries are relished by birds.

If these alternatives don't convince you to sacrifice a little lawn for groundcovers, consider this: according to the Virginia Cooperative Extension Service, grass is the most high maintenance and expensive groundcover you can grow. Why grow so much grass when other groundcovers are cheaper to us and more profitable to wildlife? □

Give Something Back

Don't forget to use Line 24A on your state income tax form to return a few dollars to the wildlife of your state. Every dollar we receive from your check-off is used to benefit the nongame and endangered wildlife of Virginia, including the northern flying squirrel, the peregrine falcon, and the bald eagle. Money is desperately needed for research to pinpoint those species in trouble and to take steps to ensure their survival. Money donated to this fund is also used for educational projects, such as "watchable wildlife areas" and school instruction to increase Virginians' awareness of the treasure they have in their wildlife, and the responsibility they have to keep it from vanishing.

You can also make direct, tax-deductible contributions to the Nongame and Endangered Species Fund by sending your check to: Nongame and Endangered Species Fund, c/o Virginia Department of Game and Inland Fisheries, P.O. Box 11104, Richmond, VA 23230-1104. □



Predators!

They're part of the picture

National Wildlife Week
March 19-25, 1989